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RADIO SPECTRUM OPERATIONAL POLICY

Band and Channel Plan: OX Band: 2.7 - 2.9 GHz

1. Purpose

In April 2000, the Radio Spectrum Management Group (RSM) of the Ministry of Economic Development (MED) initiated a consultation process to quantify the demand for additional spectrum for itinerant fixed linking use in support of Television Outside Broadcasting (TVOB) services by issuing an [Engineering Consideration Document](#) (ECD) 2000/3. Responses confirmed that a real need for additional spectrum existed, and identified the band 2.7 - 2.9 GHz as being suitable for expansion purposes. ECD 2001/2 subsequently called for comment on the use of this band for TVOB services, and elicited eight responses. These responses were considered and the Manager, RSM, determined that this band should be made available for this purpose.

2. Policy

From the date of publication of this document, applications for radio licences for Itinerant Fixed Linking in support of Television Outside Broadcasting (TVOB) services in the band 2.7 - 2.9 GHz may be made. Radio licences will be granted¹ subject to the specific criteria stated in section 3.

3. Specific Criteria

- 3.1 Licences for TVOB services in the band 2.7 - 2.9 GHz may be granted by exercising the provisions of article 4.4 of the International Radio Regulations (IRR) (refer section 4). Use of this band must be in accordance with the requirements of article 4.4.
- 3.2 The channel bandwidths and transmit - receive frequency spacing must be in accordance with the tables in Annex 1 to this document, which make provision for both 10 MHz and 28 MHz channel plans.
- 3.3 Licensees will be required to co-ordinate operational usage with all other licensed band users, so that maximum utilisation of the spectrum is achieved. A list of user contacts is maintained on the RSM website in the public information brochure [PIB37](#).

¹ Applicants should note that Management Rights may be created for this frequency band at some future date, and accordingly are recommended to familiarise themselves with the relevant provisions of the Radiocommunications Act 1989.

- 3.4 Potential licensees may apply through any RSM field office by completion of a Radio 2 application form².
- 3.5 Licence applications for this service will only be accepted where the use is clearly identified as nomadic outside broadcast television linking.
- 3.6 Nomadic radio linking equipment is of a transportable nature, and designed to be installed and operated for the purpose of covering specific short-term events.

4. General Technical Considerations

The OX band is intended to meet the demand for additional channels over and above those of the currently available channels in the O band (2.50 – 2.69 GHz). It is channelled into 19 x 10 MHz channels which, with appropriate aggregation, will also provide 3 paired 28 MHz channels. It provides a guardband of 5 MHz below the lowest frequency in the emission limit of 2,705 MHz, which provides protection to the Radio Astronomy services operating in the 2,690 – 2,700 MHz band. There is also a guardband of 5 MHz above the highest frequency in the emission limit of 2,895 MHz, which allows protection from the Radiolocation service operating above 2.9 GHz.

The band 2.7 - 2.9 GHz band is not allocated internationally to the Fixed or Mobile services, and hence any Fixed or Mobile service users of the band (such as those involved in the provision of TVOB services) must be made aware that their operation is legitimised by exercising article 4.4 of the International Radio Regulations. Under article 4.4, no relief from interference caused by legitimate transmissions originating outside the jurisdiction of New Zealand can be granted. Furthermore, interference will not be tolerated if it is caused to legitimate users of the 2.7 - 2.9 GHz band operating outside the jurisdiction of New Zealand. In any such case the transmission causing the interference will be required to cease.

5. General

Television Outside Broadcast (TVOB) services make use of itinerant fixed linking equipment for the gathering of programme material prior to its rebroadcast as television transmission content. This is typically related to short-term sporting and other events where it is not feasible to use other methods for gathering the programme material.

Where the requirements of TVOB itinerant fixed linking services increase, additional spectrum should be made available for that purpose if a real need can be demonstrated and suitable spectrum can be identified.

Recommendations from the TVOB Working Group to the MED advised of a real and demonstrated need for more spectrum than is currently available to television companies. The 2.7 – 2.9 GHz spectrum was identified as suitable. Discussions with the current users of the band, and the responses to an ECD calling for input from all interested parties, showed that the band could be made available for TVOB use. The consultation process that was undertaken is covered in ECD2001/2, and the associated “Findings” document. These are both available on the RSM web site at <http://www.med.govt.nz/rsm/publications/ecds.html>.

² Available at http://www.med.govt.nz/rsm/licensing/app_forms.html

The International Radio Regulations allocate this spectrum on a primary basis only to the Aeronautical Radionavigation service, and on a secondary basis only to the Radiolocation service. Therefore article 4.4 of the IRR must be invoked to legitimise transmissions relating to other services in the band.

Article 4.4 of the IRR states that: "Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions of these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations."

Verified by:

Approved By:

Manager – Spectrum Planning

Manager – Operational Policy

Annex 1 – Band Plan

The 2.7 – 2.9 GHz band will be known as the “OX” band, with channelling as shown in Tables 1 and 2.

Table 1
10 MHz Channelling (no mid-band gap)

Note: Aggregation of up to 3 channels will permit a 28 MHz channelling overlay as per Table 2.

Channel	Frequency (MHz)	Boundary Frequencies (MHz)	
		Lower	Upper
OX1A	2710.000	2705.000	2715.000
OX1B	2720.000	2715.000	2725.000
OX1C	2730.000	2725.000	2735.000
OX2A	2740.000	2735.000	2745.000
OX2B	2750.000	2745.000	2755.000
OX2C	2760.000	2755.000	2765.000
OX3A	2770.000	2765.000	2775.000
OX3B	2780.000	2775.000	2785.000
OX3C	2790.000	2785.000	2795.000
OX3D	2800.000	2795.000	2805.000
OX1A#	2810.000	2805.000	2815.000
OX1B#	2820.000	2815.000	2825.000
OX1C#	2830.000	2825.000	2835.000
OX2A#	2840.000	2835.000	2845.000
OX2B#	2850.000	2845.000	2855.000
OX2C#	2860.000	2855.000	2865.000
OX3A#	2870.000	2865.000	2875.000
OX3B#	2880.000	2875.000	2885.000
OX3C#	2890.000	2885.000	2895.000

Table 2
28 MHz Channelling (aligns with 10 MHz channelling and permits a 12 MHz mid- band gap)

Channel	Frequency (MHz)	Boundary Frequencies (MHz)	
		Lower	Upper
OX1	2720.000	2706.000	2734.000
OX2	2750.000	2736.000	2764.000
OX3	2780.000	2766.000	2794.000
OX1#	2820.000	2806.000	2834.000
OX2#	2850.000	2836.000	2864.000
OX3#	2880.000	2866.000	2894.000

Annex 2

Band plot for OX band - 2.7 – 2.9 GHz

